

WHAT IS CLAIMED IS:

1 1. A unitary absorbent core having a basis weight of about 75 gsm or greater,
2 comprising a fibrous absorbent layer having an upper fluid receiving surface and a lower surface
3 with a hydrophobic vapor-transmissive moisture barrier integral with the lower surface of the
4 absorbent layer.

1 2. The unitary absorbent core of claim 1, wherein the absorbent layer comprises
2 natural fibers, synthetic fibers or a mixture thereof.

1 3. The unitary absorbent core of claim 1, wherein the hydrophobic moisture
2 barrier comprises a hydrophobic material which at least partially coats the fibers of the lower surface
3 of the absorbent layer.

1 4. The unitary absorbent core of claim 3 wherein the hydrophobic material is a
2 natural or synthetic polymer.

1 5. The unitary absorbent core of claim 1 further comprising from about 5 to
2 about 90 percent by weight of SAP.

1 6. The unitary absorbent core of claim 1, wherein the core has a basis weight of
2 from about 80 gsm to about 1000 gsm.

1 7. The unitary absorbent core of claim 6, wherein the core has a basis weight
2 of from about 100 gsm to about 500 gsm.

1 8. The unitary absorbent core of claim 1, wherein the core has a density of from
2 about 0.03 to about 0.7 g/cc.

1 9. The unitary absorbent core of claim 8, wherein the core has a density of from
2 about 0.04 to about 0.3 g/cc.

1 10. The unitary absorbent core of claim 1 having a hydrohead of 30 mm or more.

- 1 11. The unitary absorbent core of claim 10 having a hydrohead of 50 mm or more.
- 1 12. The unitary absorbent core of claim 11 having a hydrohead of 70 mm or more.
- 1 13. The unitary absorbent core of claim 1 having a strikethrough of 1.8 g or less.
- 1 14. The unitary absorbent core of claim 13 having a strikethrough of 1.2 g or less.
- 1 15. The unitary absorbent core of claim 14 having a strikethrough of 0.7 g or less.
- 1 16. The unitary absorbent core of claim 1 having an air permeability of 18
2 $\text{m}^3/\text{min}/\text{m}^2$ ($60 \text{ ft}^3/\text{min}/\text{ft}^2$) or greater.
- 1 17. The unitary absorbent core of claim 1 having a water vapor transmission rate
2 of $500 \text{ g}/\text{m}^2/24 \text{ hr}$ or greater.
- 1 18. The unitary absorbent core of claim 17 having a water vapor transmission rate
2 of $1000 \text{ g}/\text{m}^2/24 \text{ hr}$ or greater.
- 1 19. The unitary absorbent core of claim 18 having a water vapor transmission rate
2 of $2000 \text{ g}/\text{m}^2/24 \text{ hr}$ or greater.
- 1 20. The unitary absorbent core of claim 19 having a water vapor transmission rate
2 of $3000 \text{ g}/\text{m}^2/24 \text{ hr}$ or greater.
- 1 21. The unitary absorbent core of claim 1 having a barrier effectiveness value of
2 30 mm or greater.
- 1 22. The unitary absorbent core of claim 21 having a barrier effectiveness value
2 of 50 mm or greater.
- 1 23. The unitary absorbent core of claim 22 having a barrier effectiveness value
2 of 75 mm or greater.
- 1 24. The unitary absorbent core of claim 1, wherein the moisture barrier has a
2 structure which substantially is fibers coated with hydrophobic material.

1 25. The unitary absorbent core of claim 1, wherein the moisture barrier has a
2 reticulated remnant of a barrier material emulsion extending from the lower surface region of the
3 absorbent layer to form an outer reticulated foam barrier.

1 26. An absorbent article comprising:
2 (a) a liquid pervious top sheet, and
3 (b) a unitary absorbent core of claim 1.

1 27. The absorbent article of claim 22 further comprising a microporous
2 backsheets.

1 28. The article of claim 26, wherein the article is an infant disposable diaper, a
2 training pant, an absorbent surgical pad, an adult incontinence device, a sanitary napkin, a pantliner
3 or a feminine hygiene pad.

1 29. A process for the production of a unitary absorbent core having a basis
2 weight of about 75 gsm or greater comprising a fibrous absorbent layer having an upper fluid
3 receiving surface and a lower surface with a hydrophobic vapor-transmissive moisture barrier
4 integral with the lower surface of the absorbent layer comprising:

5 (a) producing a fibrous absorbent layer having upper and lower surfaces,
6 (b) applying to the lower surface of the fibrous absorbent layer a hydrophobic
7 material which at least partially coats at least some of the fibers of the lower surface of the
8 absorbent layer.

1 30. The process of claim 29, wherein the fibrous absorbent layer comprises natural
2 fibers, synthetic fibers or a mixture thereof.

1 31. The process of claim 29, wherein the hydrophobic material is a natural or
2 synthetic polymer.

1 32. The process of claim 29, wherein the core comprises from about 5 to about
2 90 percent by weight of SAP.

1 33. The process of claim 29, wherein the hydrophobic material is an emulsion
2 polymer.

1 34. The process of claim 23, wherein the emulsion polymer is applied in the form
2 of a foam.

1 35. The process of claim 34, wherein the emulsion polymer includes a foam
2 stabilizer.

1 36. Process of claim 34, wherein the emulsion polymer includes a
2 hydrophobicity agent.

37. The process of claim 29, wherein the fibrous absorbent layer is a nonwoven
produced by an airlaid process.

38. The process of claim 29, wherein the unitary absorbent core comprises two
or more fibrous strata where each stratum is produced in a separate unit operation as part of a
continuous process.

39. The process of claim 38, wherein the unitary absorbent core comprises three
or more fibrous strata.

40. The process of claim 29, wherein the process comprises providing a tissue
having a basis weight of less than about 30 gsm, spraying the tissues with emulsion polymer binder
having a dry basis weight of about 10 gsm or less and airlaying a fibrous stratum thereupon.

41. The process of claim 40, wherein the fibrous stratum contains fifty percent or
more by weight of eucalyptus fibers.

1 42. The process of claim 29, wherein the unitary absorbent core comprises one
2 or more strata which are multibonded with an emulsion polymer binder and thermal bicomponent
3 fiber binder.

1 43. The process of claim 29, wherein the moisture barrier produced has a structure
2 which at least partially coats the fibers at the surface of the absorbent layer with hydrophobic
3 material.

1 44. The process of claim 29, wherein the moisture barrier produced has a
2 reticulated remnant of a barrier material emulsion extending from the lower surface region of the
3 absorbent layer to form an outer reticulated foam barrier.

 45. A unitary absorbent core produced by the process of claim 29.

1 46. A breathable nonwoven fibrous material having a basis weight of about 75
2 gsm or greater, a barrier effectiveness value of 30 mm or greater, and having a surface with a
3 hydrophobic vapor-transmissive moisture barrier integral therewith comprising natural fibers,
4 synthetic fibers or a mixture thereof, and a hydrophobic material which at least partially coats the
5 fibers of a surface of the material.

1 47. A breathable, partially fibrous or nonfibrous nonwoven material or structure
2 having a basis weight of about 45 gsm or greater, a barrier effectiveness value of 30 mm or greater,
3 and having a surface with a hydrophobic vapor-transmissive moisture barrier integral therewith, the
4 material or structure comprising one or more spunbonded, meltblown, coformed, bonded carded, or
5 foamed constituents, optionally in combination with natural fibers, synthetic fibers or a mixture
6 thereof.

1 48. The nonwoven material or structure of claim 47, wherein the foamed
2 constituent is a high internal phase emulsion (HIPE) foam.

1 49. The nonwoven material or structure of claim 47, wherein the material or
2 structure is a combination comprising from about 50 to about 99 percent by weight of natural fibers,
3 synthetic fibers or a mixture thereof.

